ABSTRACT

An organometallic complex structure or the like is provided that is suitable for a novel material, composite material, film, structure, detecting unit such as a sensor, etc. in a variety of regions such as electronics, magnetics, adsorption, and catalyst.

An organometallic complex structure including a metal ion, an organic compound capable of binding to the metal ion, a pillar ligand capable of binding to the metal ion, and an organic polymer capable of interacting with the metal ion, wherein the organometallic complex structure has a porous structure. Preferably, in one aspect, the molar ratio of the metal ion, the organic compound, and the pillar ligand is 2: 2: 1, in another aspect, an organometallic complex expressed by formula: $\{[M_2Y_2L]_2 \cdot xH_2O\}_n$, where M represents the metal ion, Y represents the organic compound, L represents the pillar ligand, and x and n represent an integer, is included, and in another aspect, the porous structure is a structure such that pores with a specific size are arrayed regularly.